

Listing of the Claims

1. (original) An alignment fixture for aligning a component of a drum assembly used in a video recording device, said alignment fixture allowing said drum assembly to be aligned outside of said video recording device, said alignment fixture comprising:

a base configured to receive and support said drum assembly;

a reference system configured to place a portion of said drum assembly in a known position relative to said base; and

a positioning system for adjusting the position of said component of said drum assembly relative to said base when said portion of said drum assembly is positioned in said known position.

2. (original) The fixture as recited in claim 1 wherein said base includes an opening for receiving a portion of said drum assembly therethrough, and a mounting surface for supporting a portion of said drum assembly thereon.

3. (original) The fixture as recited in claim 1 wherein said reference system includes one or more reference pins for guiding said drum assembly into said known position, said reference pins engaging the outer peripheral surface of said drum assembly so as to prevent the drum assembly from moving laterally.

4. (original) The fixture as recited in claim 1 wherein the component is a drum, and wherein said positioning system includes a positioning mechanism for adjusting the position of said drum, said positioning mechanism including an adjustment post structurally coupled to said base and an adjustment screw threadably coupled to said adjustment post, the adjustment screw being configured to engage and exert a force on said drum so as to adjust its position.

5. (original) The fixture as recited in claim 1 wherein the component is a structural support, and wherein said positioning system includes a positioning mechanism for adjusting the position of said structural support, said positioning mechanism including an adjustment screw threadably coupled to said base, said adjustment screw being configured to engage and exert a force on said structural support so as to adjust its position.

6. (original) The fixture as recited in claim 1 wherein said positioning system includes a measurement arrangement for checking the alignment of said component of said drum assembly, said measurement arrangement including a measurement post for receiving a measurement device for measuring the eccentricity of said component, said measurement post being structurally coupled to said base.

7.-23. Canceled.

24. (New) The fixture as recited in claim 1 wherein said positioning system includes a positioning mechanism including an adjustment post structurally coupled to said base and an adjustment screw threadably coupled to said adjustment post, the adjustment screw being configured to engage and exert a force on said component so as to adjust its position.

25. (New) The fixture as recited in claim 1 wherein said positioning system includes an aligning actuator that exerts a lateral force on said component of said drum assembly to move said component of said drum assembly relative to a second component of said drum assembly, said second component of said drum assembly being supported by said base so that is immovable relative to said base when said force is applied to said component of said drum assembly.

26. (New) An alignment system for aligning a component of a drum assembly associated with a video recording device, the drum assembly including a stationary lower drum connected to a base, a stationary upper drum connected to the lower drum via an upper and lower drum support, a spindle assembly rotatably coupled to the base about a spindle axis, and a rotatable inner drum attached to the spindle assembly and including a plurality of record/reproduce heads located between the lower and upper drums for digital video recording and reproducing, said alignment fixture allowing said drum assembly to be aligned outside of said video recording device, said alignment system comprising:

an alignment fixture including,

a fixture platform configured to receive and support the drum assembly;

a reference system configured to hold a second component of the drum assembly in a known position relative to the fixture platform; and

a positioning system for adjusting the position of the component of the drum assembly relative to the second component of the drum assembly when the second component of the drum assembly is held in the known position.

27. (new) The alignment system as recited in claim 26 wherein the fixture platform includes an opening that receives the base of the drum assembly therethrough, and a mounting surface that engages a bottom surface of the lower drum of the drum assembly thereby supporting the drum assembly on the fixture platform in the z direction.

28. (new) The alignment system as recited in claim 27 wherein the fixture platform further includes mounting threads disposed in the mounting surface, the mounting threads helping secure the drum assembly to the fixture platform via screws, which are placed through holes in at least the drums of the drum assembly and which threadably engage the mounting threads.

29. (new) The alignment system as recited in claim 27 wherein the reference system includes one or more reference pins for guiding the drum assembly into the known position, the reference pins being positioned around the opening in the fixture platform so that they abut the sides of the lower drum thereby preventing the drum assembly from moving laterally in the x or y directions when the bottom surface of the lower drum is engaged with the mounting surface of the fixture platform.

30. (new) The alignment system as recited in claim 29 wherein the reference system includes one or more alignment pins for guiding the drum assembly into the known position, the alignment pins protruding from the mounting surface so that they extend into corresponding holes in the bottom surface of the lower drum of the drum assembly thereby preventing the drum assembly from moving laterally in the x or y directions when the bottom surface of the lower drum is engaged with the mounting surface of the fixture platform.

31. (new) The alignment system as recited in claim 27 wherein the reference system includes one or more alignment pins for guiding the drum assembly into the known position, the alignment pins protruding from the mounting surface so that they extend into corresponding holes in the bottom surface of the lower drum of the drum assembly thereby preventing the drum assembly from moving laterally in the x or y directions when the bottom surface of the lower drum is engaged with the mounting surface of the fixture platform.

32. (new) The alignment system as recited in claim 36 wherein the spindle axis of the drum assembly is placed in a known position relative to the fixture platform.

33. (new) The alignment system as recited in claim 27 wherein the positioning system includes a positioning mechanism for adjusting the position of the upper drum support or the upper drum, the positioning mechanism including first and second adjustment posts structurally coupled to the fixture platform and a first adjustment screw threadably coupled to the first adjustment post and a second adjustment screw threadably coupled to the second adjustment post, the adjustment screws being configured to engage and exert a force on the upper drum support or the upper drum so as to adjust their position relative to the known position when the adjustment screws are linearly moved through the adjustment posts in an x-y plane.

34. (new) The alignment system as recited in claim 33 wherein the first and second adjustment screws are positioned in an opposed relationship, the first adjustment screw applying a first force in a first direction and the second adjustment screw applying a second force in a second direction which is opposite the first direction, and wherein the first and second adjustment screws move linearly along the same screw axis.

35. (new) The alignment system as recited in claim 34 wherein the adjustment screws engage opposing sides of the drum support when the drum assembly is secured in the fixture, and when the adjustment screws are actuated.

36. (new) The alignment system as recited in claim 34 wherein the adjustment screws engages the upper drum, and wherein the screw axis intersects the spindle axis when the drum assembly is secured in the fixture, and when the adjustment screws are actuated.

37. (new) The alignment system as recited in claim 33 further comprising a second positioning mechanism for adjusting the position of the lower drum support, the second positioning mechanism including a pair of spaced-apart set screws, which are threadably received within first and second threaded receptacles located in the side of the fixture platform, the first and second threaded receptacles extending from a side of the fixture platform to the opening in the fixture platform so as to allow the set screws to be positioned in the opening when the set screws are rotated, the set screws exerting a force on the lower drum support so as to adjust its

position, the first and second threads being positioned on opposite lateral sides of the lower drum support when the drum assembly is positioned within the opening, the first set screw engaging a first side of the lower drum support and the second set screw engaging the second side of the lower drum support when actuated, the set screws moving linearly in a direction that traverses the direction of the screw axis of the adjustment screws.

38. (new) The alignment system as recited in claim 26 further comprising a drum alignment tool and a measurement device, the drum alignment tool including an alignment plate configured to be secured to the spindle assembly or inner drum of the drum assembly, the alignment plate having a reference surface for receiving an inner surface of the drum support so as to position the inner surface relative to the spindle axis when the alignment plate is secured to the spindle assembly or inner drum of the drum assembly, the measurement device being attachable to the fixture platform and configured to measure the position of the alignment plate or inner drum relative to the spindle axis of the drum assembly when the alignment plate is secured to the spindle assembly or the inner drum and when the drum assembly is placed in the alignment fixture.

39. (new) The alignment system as recited in claim 38 wherein the positioning system comprises a positioning mechanism for adjusting the position of the drum alignment tool or the inner drum relative to the spindle assembly when the drum assembly is placed in the alignment fixture.

40. (new) The alignment system as recited in claim 39 wherein the positioning mechanism includes,

a measurement post for receiving the measurement device, the measurement post being structurally coupled to the fixture platform; and

an adjustment screw which is threadably coupled to an adjustment post, the adjustment post being structurally coupled to the fixture platform, the adjustment screw being configured to engage and exert a force on the drum alignment tool or the inner drum so as to adjust their position relative to the spindle assembly when the adjustment screws are linearly moved through the adjustment post.

41. (new) The alignment system as recited in claim 40 wherein the measurement post and adjustment post are spaced apart on the fixture platform thereby leaving a space for the drum

assembly when the drum assembly is placed in the alignment fixture, the measurement device when positioned in the measurement post having a working direction in opposed relationship with the adjustment screw.

42. (new) The alignment system as recited in claim 26 wherein the video recording device is a DVW model video recording device.